

OM SENI

Features

- ESD Protection for 1 line with Bi-directional
- Provide ESD protection for the protected line to
IEC 61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact)
IEC 61000-4-4 (EFT) 80A (5/50ns)
IEC 61000-4-5 (Lightning) 42A (8/20 μs)
- For low operating voltage applications: 3.3V
- **0402 small DFN package** saves board space
- Protect one I/O line or power line
- Fast turn-on and Low clamping voltage
- Solid-state silicon-avalanche and active circuit triggering technology
- **Green Part**

Applications

- Power Line Protection
- Audio Protection
- Mobile Phones
- Control Signal Line Protection
- Hand Held Portable Applications

Description

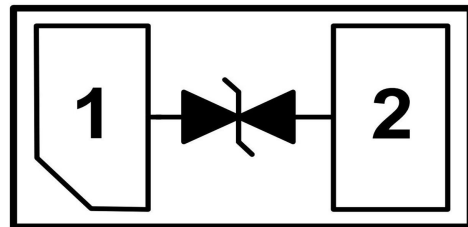
AZ5883-01F is a design which includes one bi-directional surge rated clamping cell to protect one power line, or one control line, or one low speed data line in an electronic systems. The AZ5883-01F has been specifically designed to protect sensitive components which are connected to power and control lines from over-voltage damage and latch-up caused by Electrostatic Discharging (ESD), Electrical Fast Transients (EFT), Lightning, and Cable Discharge Event (CDE).

AZ5883-01F is a unique design which includes proprietary clamping cell in a single package. During transient conditions, the proprietary clamping cell prevents over-voltage on the power line or control/data lines, protecting any

downstream components.

AZ5883-01F may be used to meet the ESD immunity requirements of IEC 61000-4-2, Level 4 ($\pm 15\text{kV}$ air, $\pm 8\text{kV}$ contact discharge).

Circuit Diagram / Pin Configuration



DFN1006P2E (Bottom View)

Dimensions DFN1006



OM SENI

SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C, unless otherwise specified)			
PARAMETER	SYMBOL	RATING	UNITS
Peak Pulse Current (tp=8/20μs)	I _{PP-1} (Note 1)	42	A
	I _{PP-2} (Note 2)	33	
Operating Supply Voltage	V _{DC}	±3.6	V
ESD per IEC 61000-4-2 (Air)	V _{ESD}	±30	kV
ESD per IEC 61000-4-2 (Contact)		±30	
Lead Soldering Temperature	T _{SOL}	260 (10 sec.)	°C
Operating Temperature	T _{OP}	-55 to +125	°C
Storage Temperature	T _{STO}	-55 to +150	°C

ELECTRICAL CHARACTERISTICS						
PARAMETER	SYMBOL	CONDITIONS	MINI	TYP	MAX	UNITS
Reverse Stand-Off Voltage	V _{RWM}	T=25 °C.	-3.3		3.3	V
Reverse Leakage Current	I _{Leak}	V _{RWM} = ±3.3V, T=25 °C.			0.5	μA
Reverse Breakdown Voltage	V _{BV}	I _{BV} = 1mA, T=25 °C.	4.5		6.8	V
Surge Clamping Voltage (Note 1)	V _{CL-surge}	I _{PP} = 5A, tp=8/20μs, T=25 °C.		4.5		V
		I _{PP} = 42A, tp=8/20μs, T=25 °C.		9		
ESD Clamping Voltage (Note 3)	V _{clamp}	IEC 61000-4-2 +8kV (I _{TLP} = 16A), contact mode, T=25 °C.		5		V
ESD Dynamic Turn-on Resistance	R _{dynamic}	IEC 61000-4-2 0~+8kV, contact mode, T=25 °C.		0.04		Ω
Channel Input Capacitance	C _{IN}	V _R = 0V, f = 1MHz, T=25 °C.		70	85	pF

Note 1: The Peak Pulse Current measured conditions: tp = 8/20μs, 20ohm source impedance.

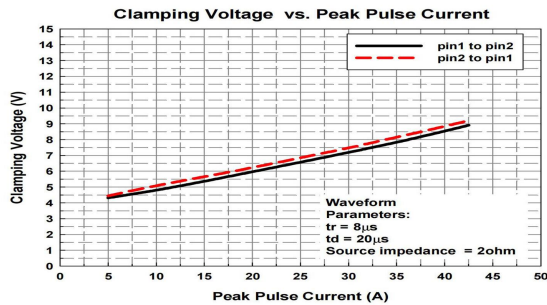
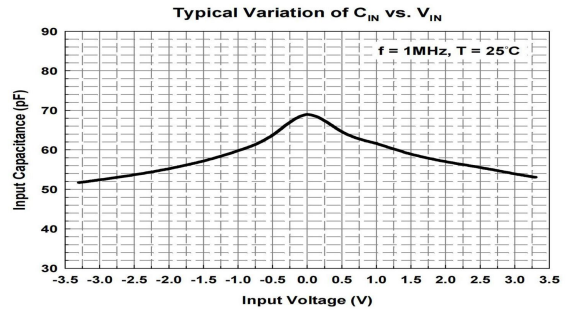
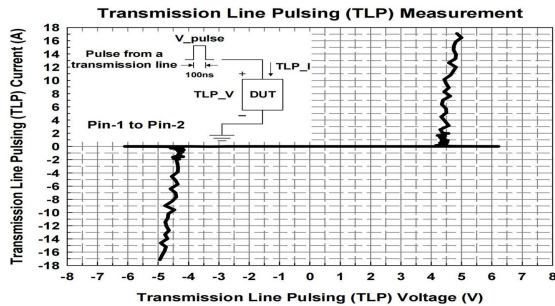
Note 2: The Peak Pulse Current measured conditions: tp = 8/20μs, 42ohm source impedance.

Note 3: ESD Clamping Voltage was measured by Transmission Line Pulsing (TLP) System.

TLP conditions: Z₀ = 50Ω, t_p = 100ns, t_r = 1ns.

OM SENI

Typical Characteristics

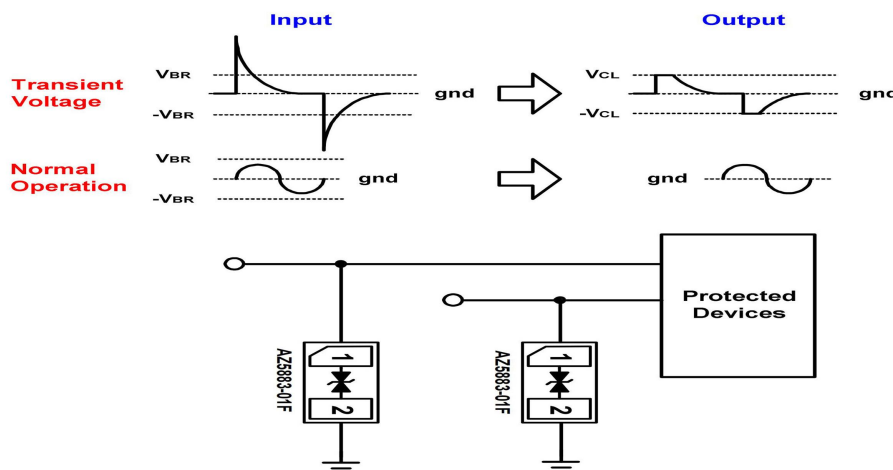


The AZ5883-01F is designed to protect one line against System ESD/EFT/Lightning pulses by clamping it to an acceptable reference. It provides bi-directional protection.

The usage of the AZ5883-01F is shown in Fig. 1. Protected line, such as data line, control line, or power line, is connected at pin 1. The pin 2 is connected to a ground plane on the board. In order to minimize parasitic inductance in the board traces, all path lengths connected to the pins of AZ5883-01F should be kept as short as possible.

In order to obtain enough suppression of ESD induced transient, good circuit board is critical. Thus, the following guidelines are recommended:

- Minimize the path length between the protected lines and the AZ5883-01F.
- Place the AZ5883-01F near the input terminals or connectors to restrict transient coupling.
- The ESD current return path to ground should be kept as short as possible.
- Use ground planes whenever possible.
- NEVER route critical signals near board edges and near the lines which the ESD transient easily injects to.



OM SENI

Ordering Information

PREFERRED P/N	PACKAGE	SIZE(mm)	DELIVERY MODE	MPQ(PCS)
	DFN1006-2L	1.00×0.60×0.37	7" REEL	10,000

Recommended Soldering Conditions



Package Outline Dimensions (DFN1006-2L)

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
A	0.950	1.050	0.037	0.041
B	0.550	0.650	0.022	0.026
C	0.350	0.450	0.014	0.018
D	0.550	0.650	0.022	0.026
D ₁	0.280	0.380	0.011	0.015
E	0.450	0.550	0.018	0.022
L	0.000	0.100	0.000	0.004

Suggested Pad Layout

Symbol	Dimensions			
	Millimeters		Inches	
	Min	Max	Min	Max
J	0.50	0.60	0.020	0.024
K	0.25	0.35	0.010	0.014
M	0.55	0.65	0.022	0.026